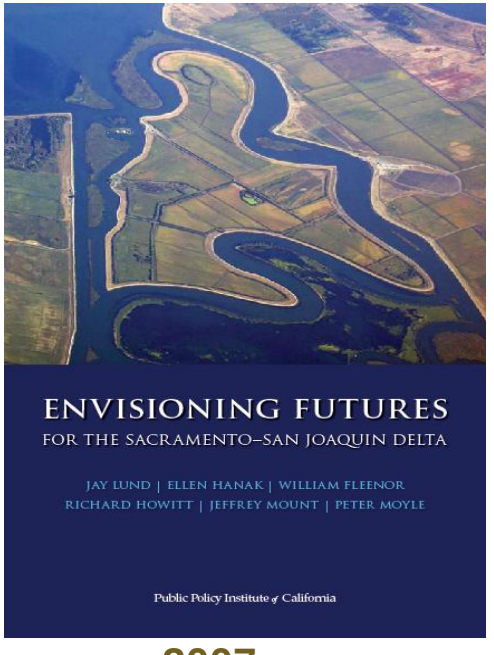
Why Integration is Key to Improving Aquatic Ecosystem Outcomes

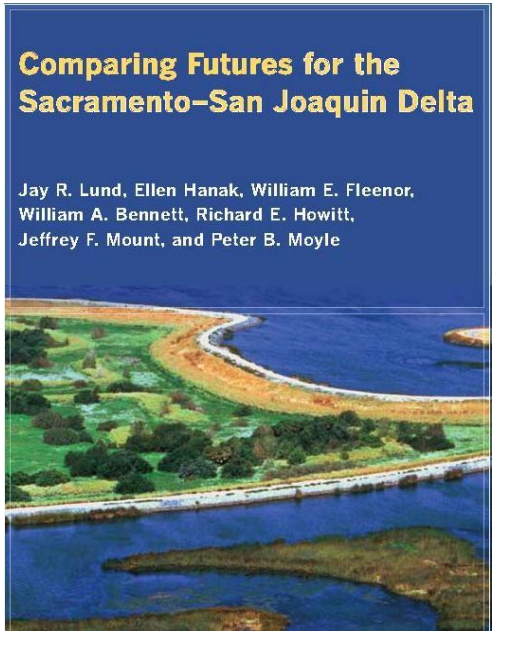
Ellen Hanak
Public Policy Institute of California
WQCC Meeting November 2, 2012

PPIC

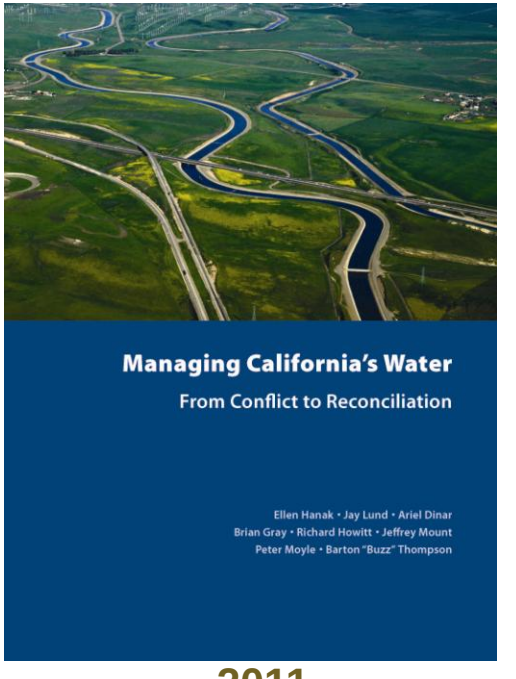
Reflections from an Interdisciplinary Research Program



2007



2008, 2010



2011

Biologists:
Peter Moyle, UC Davis
Bill Bennett, UC Davis

Economists:
Ellen Hanak, PPIC*
Richard Howitt, UC Davis
Ariel Dinar, UC Riverside

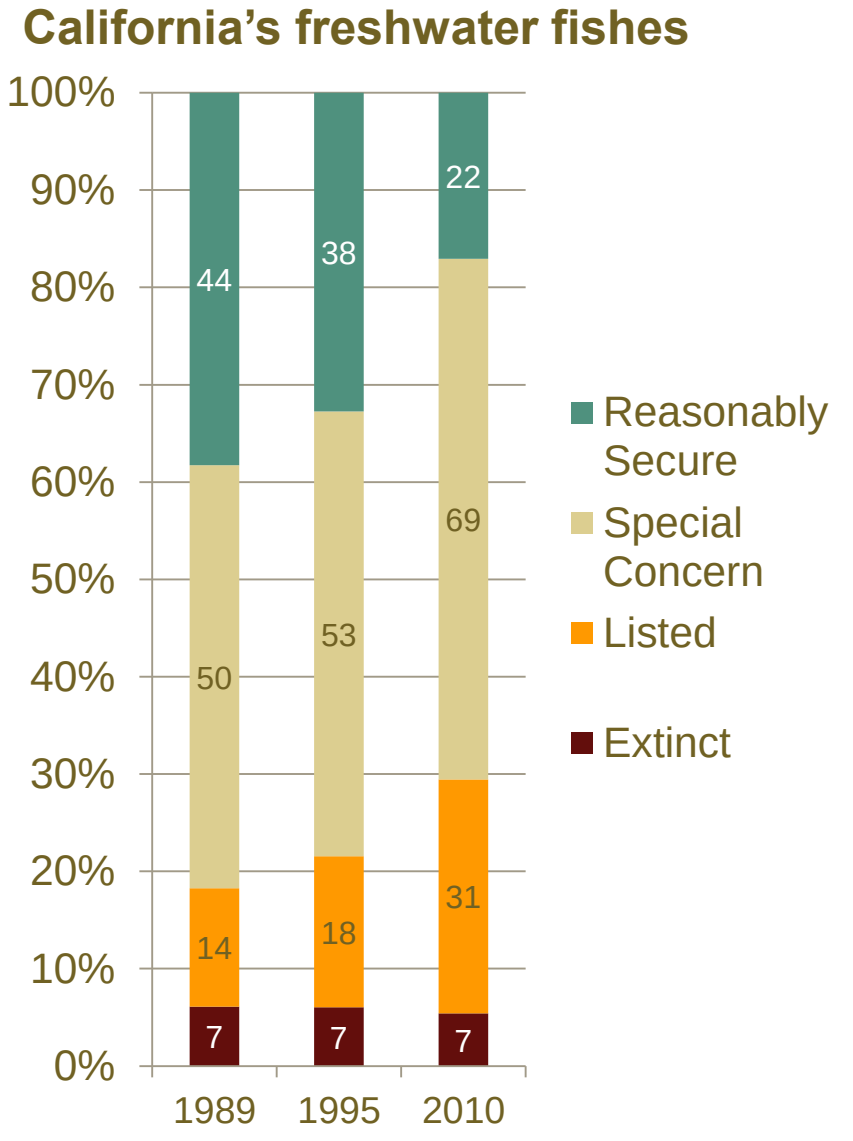
Engineers:
Jay Lund, UC Davis*
Bill Fleenor, UC Davis

Geologist:
Jeff Mount, UC Davis

Lawyers:
Brian Gray, UC Hastings
Buzz Thompson, Stanford

**Lead authors*

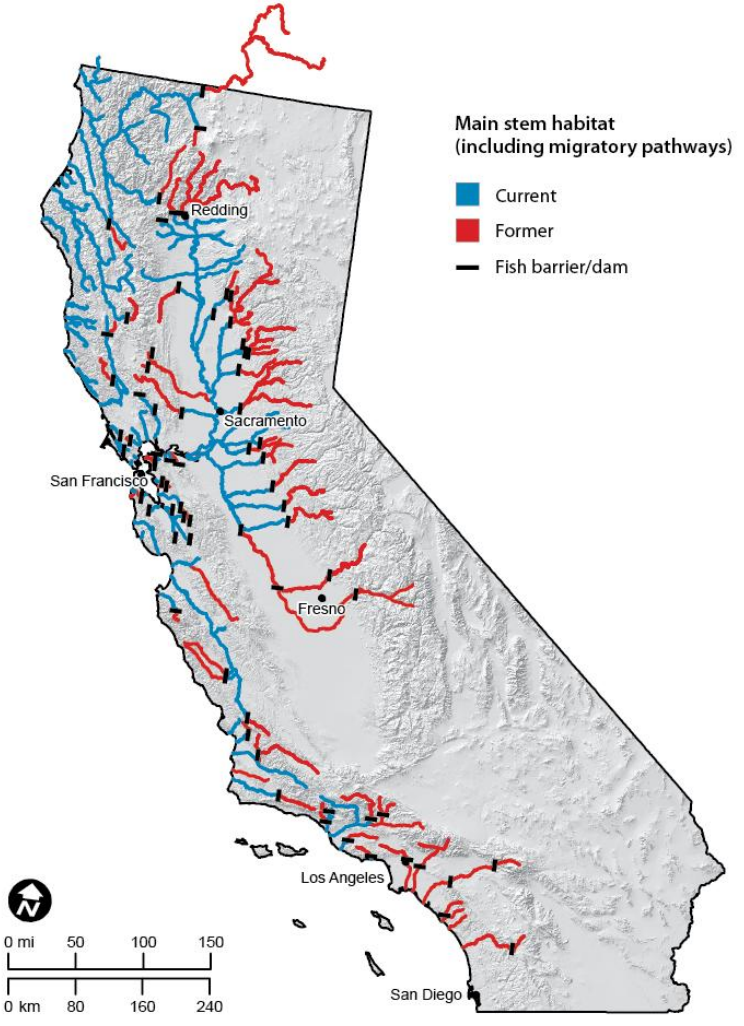
California's Native Fish Are in Trouble



- Despite decades of well-intentioned laws and efforts
- Efforts now threaten water supply reliability and flood protection: growing conflict
- Not just a Delta problem!

Source: Moyle, Katz, and Quinones, Biological Conservation, 2011

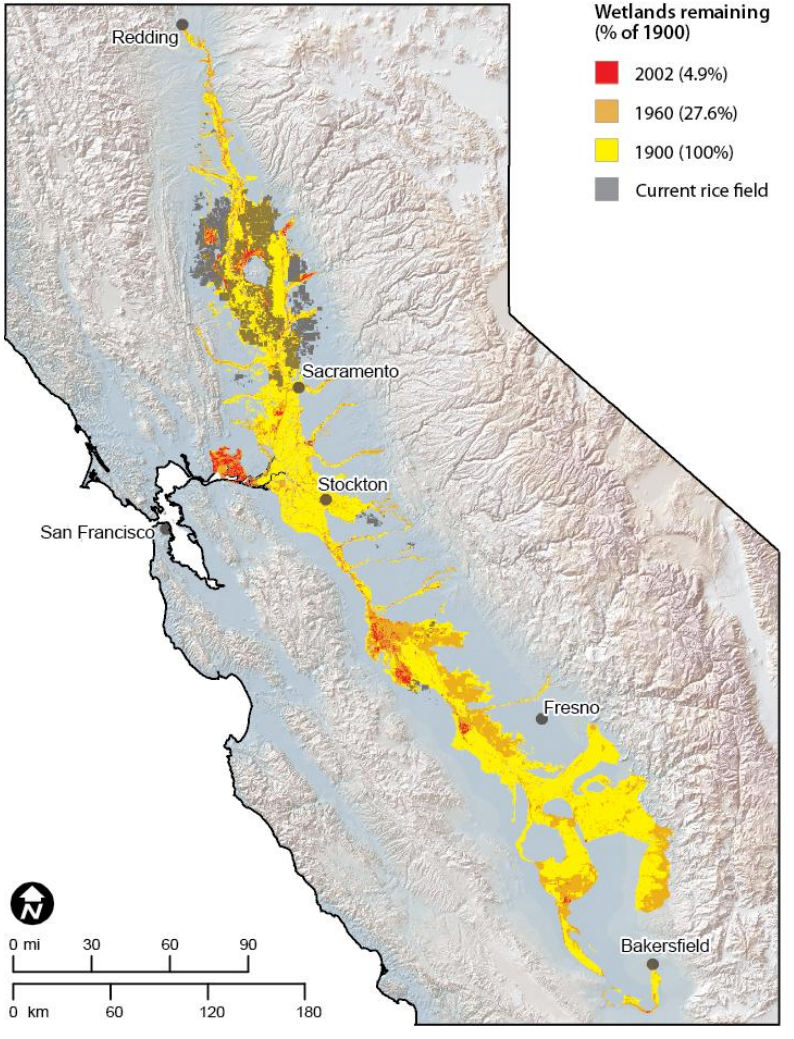
Dams and Diversions: Good for People, Bad for Native Species



- Blockage of upstream habitat
- Alteration of downstream habitat
- Disturbance of natural flow patterns

Source: Hanak et al, Managing California's Water, 2011

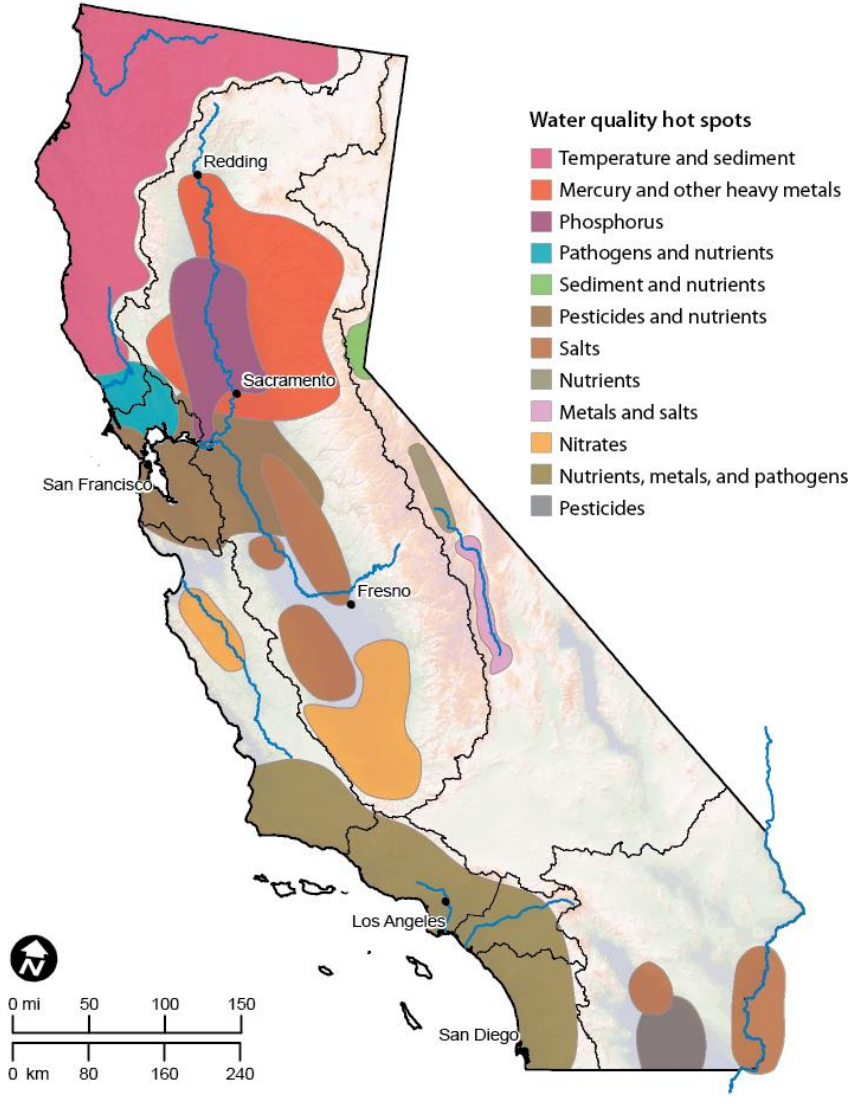
So Are Losses of Floodplains and Wetlands



- Habitat declines from water and land development

Source: Hanak et al, Managing California's Water, 2011

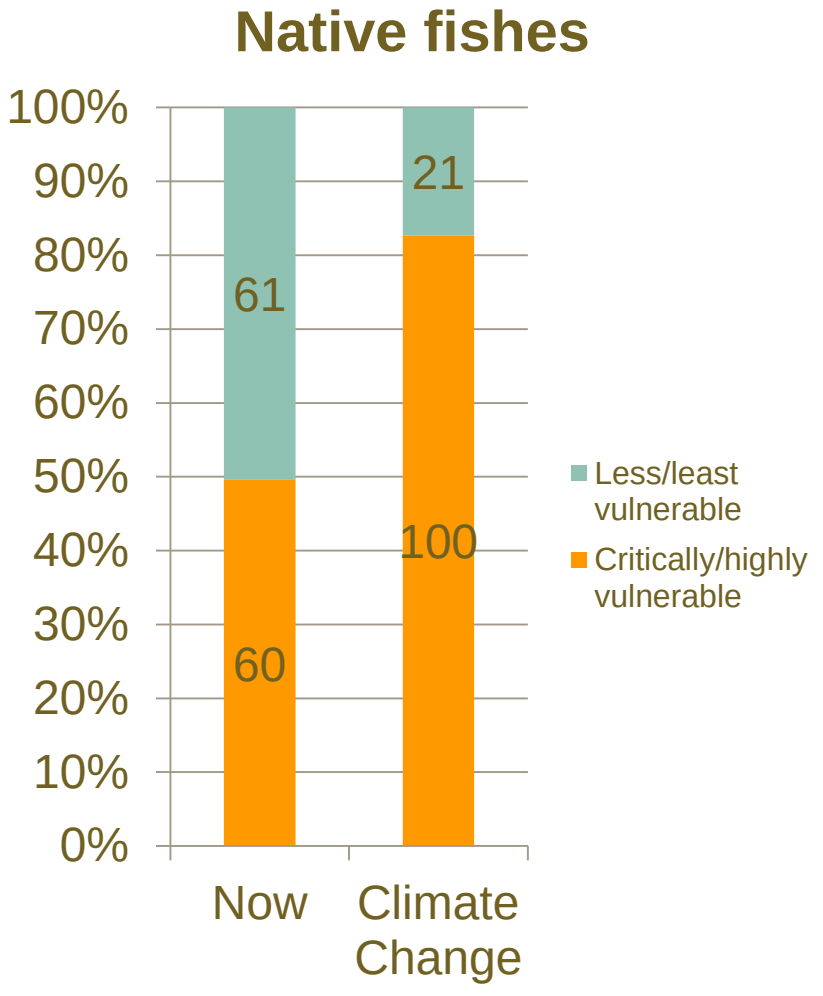
And Water Quality Is Still a Major Concern

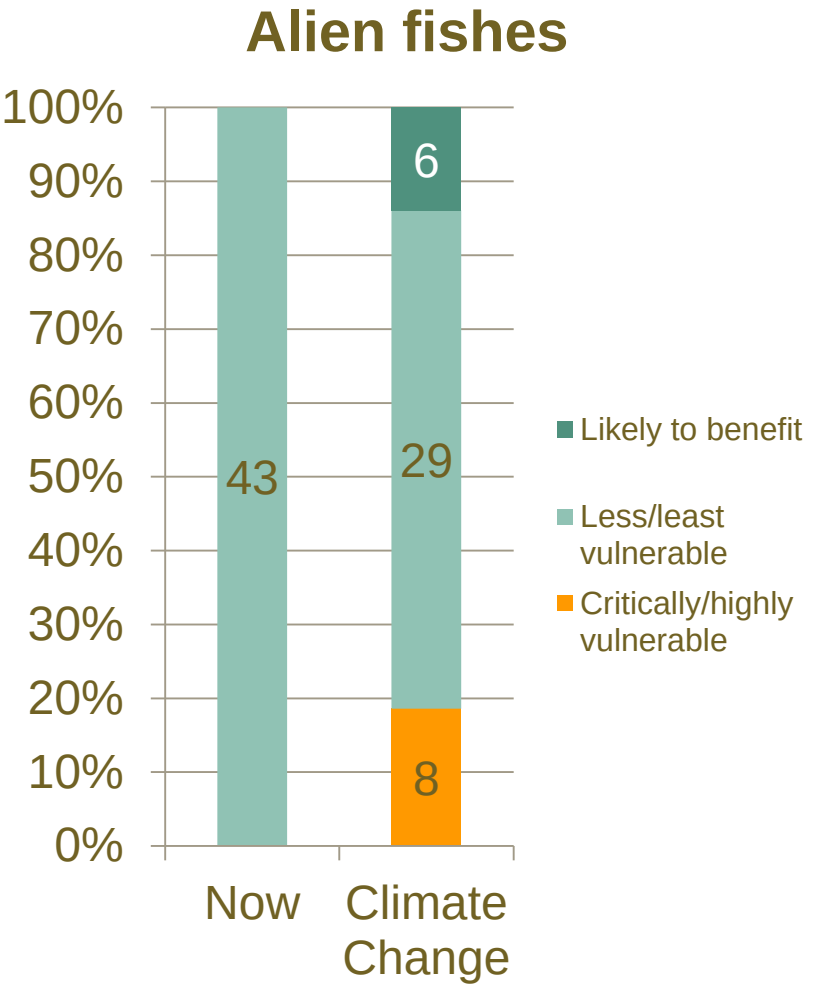


- Lingering "point" source pollution
- Runoff from farms, cities still not well managed
- People can treat their water before using it… fish can't

Source: Hanak et al, Managing California's Water, 2011

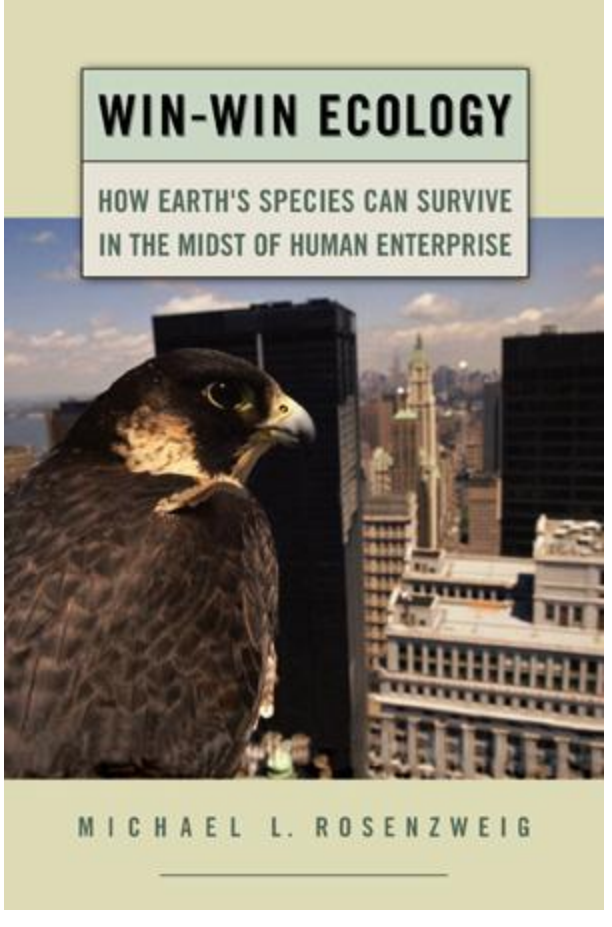
Climate Change Will Make Things Worse





Source: Moyle et al. California Energy Commission, 2012

Can't Go Back, So Which Way Forward?



Oxford Univ. Press, 2003

- Reserves and restoration cannot suffice
- Reconciliation ecology
  - Acknowledges extent of human footprint
  - Makes this footprint more "careful"
  - Uses technology to support ecosystem goals

Some Reconciliation Approaches for California's Watersheds

Putah Creek

Yolo Bypass

- Use more natural flow regimes
- Set back, remove levees
- Re-operate, retire dams
- Improve hatcheries
- Reduce contaminants
- Limit new invasives
- Specialize some streams

Source: Hanak et al, Managing California's Water, 2011, Ch 5

Reconciliation Will Cost Money

Matilija Dam

- Habitat
- Infrastructure
- Water
- Science

- We need to get better at spending it wisely…

Reconciliation Will Require Our Institutions to Work Differently

- Watershed scale
- Coordinated vision
- Local engagement
- More flexible oversight (e.g., pro-active permitting)
- Big-picture accountability

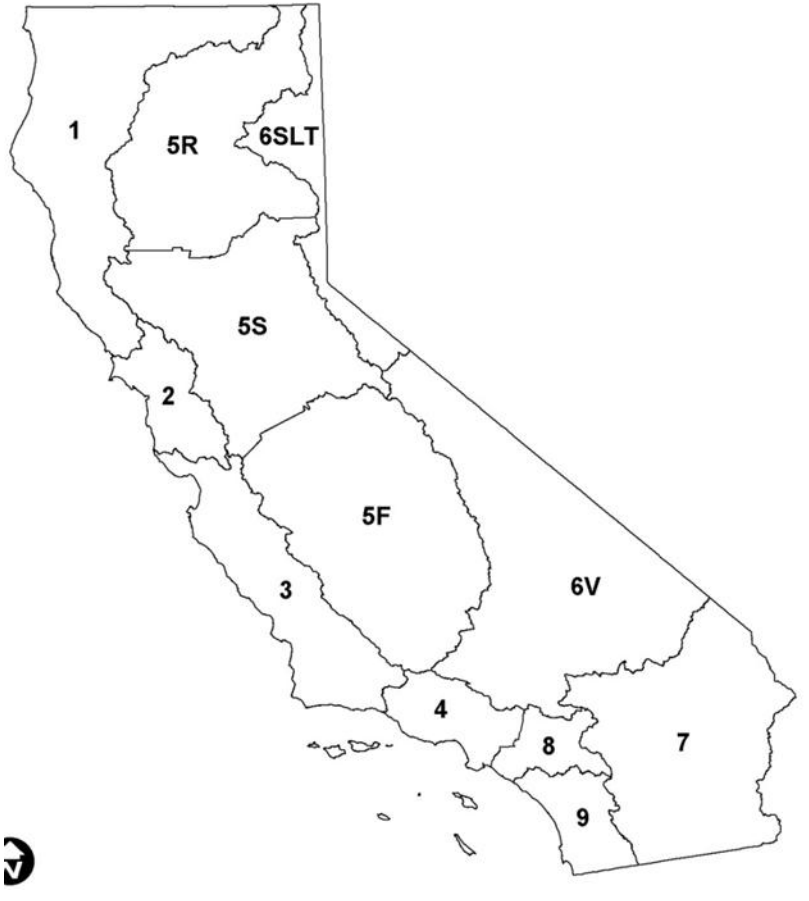
A simplified "conceptual model" of state and federal agency roles

Courtesy: Jeff Mount

Some Positive Steps to Build On

Initiative	Achievements	Gaps
Habitat Conservation Plans/NCCPs	Ecosystem-based permitting approach	Usually only considers some stressors, often too small
Mitigation/conservation banks	Rationalizes habitat mitigation	Not much yet for aquatic ecosystems, slow uptake
Regional water quality control plans	Broad watershed-based approach	Focus only on some stressors (quality, flows?)
Delta Plan	Forum for multi-stressor planning, coordination	Upstream issues off-limits

The All-In Approach: Regional Stewardship Authorities



- Integrated planning for supply, quality, floods, habitat
- Framework for local actions
- Focal point for state-federal coordination

For more: Hanak et al, Managing California's Water, 2011

Final Thoughts: Key Ingredients for Reconciliation

- Strong leadership
- An engaging vision

- Willingness to take risks

For More Information...

- All reports available at www.ppic.org

Notes on the use of these slides

These slides were created to accompany a presentation. They do not include full documentation of sources, data samples, methods, and interpretations. To avoid misinterpretations, please contact:

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Thank you for your interest in this work.